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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* GERALD M. BENSON  
and KENNETH L. SMITH

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Appeal 2010-005053  
Application 09/515,978  
Technology Center 1700

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Before ADRIENE LEPIANE HANLON, CHARLES F. WARREN, and  
CATHERINE Q. TIMM, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

Applicants appeal to the Board from the decision of the Primary Examiner finally rejecting claims 16-23 and 40 in the Office Action mailed March 16, 2009. 35 U.S.C. §§ 6 and 134(a) (2002); 37 C.F.R. § 1.191(a)(1)

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

(2003); *see also* 37 C.F.R. § 41.31(a) (September 2009).

We affirm the decision of the Primary Examiner.

Claim 16 illustrates Appellants' invention of a compound substrate, and is representative of the claims on appeal:

16. A compound substrate, comprising:  
a replicated substrate having a structured surface;  
a plurality of machined substrate embedded in portions of the structured surface; and  
a plurality of cube corner elements that each form a cube corner pyramid having a machined substrate piece embedded in a portion of the structured surface and that each have at least one compound face including a replicated substrate face and a machined substrate face.

Appellants request review of the ground of rejection under 35 U.S.C. § 102(b) advanced on appeal: claims 16-23 and 40 over Nilsen (U.S. 5,657,162). Br. 6; Ans. 3.

Appellants argue the claims in the ground of rejection as a group. *See generally* Br. Thus, we decide this appeal based on claim 16. 37 C.F.R. § 41.37(c)(1)(vii) (2009).

### Opinion

Appellants contend that the Examiner erred in interpreting the claim term "embedded" in the claim language "a plurality of machined substrate pieces embedded in portions of the structured surface [of the replicated substrate]" of representative claim 16, and thus in finding that the claimed compound substrate encompassed by claim 16 is anticipated by Nilsen. Br., e.g., 6-7.

On this record, we cannot subscribe to Appellants' position. In this respect, we are in agreement with the Examiner's interpretation of the claim

term “embedded” in light of evidence in the Specification and finding of anticipation of claim 16 over Nilsen stated in the Answer, to which we add the following for emphasis with respect to Appellants’ arguments. Ans. 3-5.

I.

Appellants submit that the interpretation of the term “embedded” is the issue on appeal, arguing that the term must be given its common dictionary meaning of “[t]o fix firmly in a surrounding mass.” Br. 6, citing *The American Heritage Dictionary of the English Language* (4th ed., Houghton Mifflin Co., 2000). Appellants contend that the dictionary definition of the term “embedded” reflects the disclosure in the Specification that, in forming replicated substrate 70 over machined substrate 28, as illustrated in Figures 6 and 6a, “[p]ortions of the replicated substrate 70 protrude into the machined substrate 28 to form a compound substrate 82 (see also Fig. 9).” Br. 7-8, citing Spec. 11:5-20. Appellants contend that it is disclosed in the Specification that, as illustrated in Specification Figure 9, “replicated substrate (70) is bonded along at least a portion of the interface with the machined substrate (28).” Br. 8; *see also* Br. 7, citing Spec. 26:19-22. Appellants contend that Specification Figure 9 further illustrates the machining step which removes machined substrate 28 from replicated substrate 70 except for protrusions 58 of machined substrate 28 which “remain embedded in the replicated substrate 70,” in forming compound substrate 82. Br. 8, citing Spec. 11:21 to 12:5, and 12:19 to 13:20.

We find that the Specification discloses that, as illustrated in Specification Figure 6a,

due to the previous passivation and abrasion steps, the replicated substrate 70 adheres to the structured surface 50

along the top surface 62 of the protrusions 58, but not along the passivation surfaces of the pyramids 56 and the side surfaces 60, 61 of the protrusions 58. Portions of the replicated substrate 70 protrude into the machined substrate 28 to form a compound substrate 82 (see also Fig. 9).

Spec. 11:11-16.

We find that the Specification further discloses that, as illustrated in Specification Figure 9,

the compound substrate 82 comprises the machined substrate 28 and the un-separated replicated substrate 70. The interface 92 between the structured surface 50 [of machined substrate 28] and the replicated substrate 70 is indicated by dashed line. Bonding at the interface 92, however, is limited to the abraded top surfaces 62 of the protrusions 58 [of machined substrate 28]. The passivation layer prevents or minimizes adhesion along the remainder of the interface 92, such as along the pyramids 56 or the side surfaces 60, 61 of the protrusions 58.

Spec. 12:19-25.

We find the Specification still further discloses that, as illustrated in Specification Figure 9,

[i]n some embodiments, the tool 101 may cut into the replicated substrate 70 such that the replicated substrate may include a replicated or form portion and a machined portion. The distal ends or top surfaces 62 of the discrete pieces or protrusions 58 from the machined substrate 28 are bonded to the replicated substrate 70. Bottom or proximal portions of the protrusions 58 are machined to form cube corner pyramids 120a. The protrusions 58 on the machined substrate 28 remain embedded in the replicated substrate 70.

Spec. 13:11-17.

On this basis, we are of the opinion that the Examiner correctly found

that the Specification discloses to one of ordinary skill in the art that “the replicated substrate [70] and the machined substrate [28] are only bonded together with [sic, which] creates an interface,” and “[t]here is no description in the specification that the machined substrate [28] is ever more than surface bonded in the replicated substrate [70].” Ans. 4-5, citing Spec. 11:5-20. The Examiner thus properly concludes that “the machined portions [58] are firmly surfaced bonded to the replicated substrate surface [70] and surrounded by replicated substrate [70] protrusions.” Ans. 5. Indeed, the disclosure in the Specification makes clear that, as illustrated in Specification Fig. 9, protrusions 58 are pieces of machined substrate 28 which remain in replicated substrate 70 after machining, and which are bonded only at top surfaces 62 and not along side surfaces 60, 61.

Thus, we cannot agree with Appellants’ position that the Specification supports the common dictionary meaning of the term “embedded.” Indeed, the definition of “embedded” relied on by Appellants reads: “1. To fix firmly in a surrounding mass: *embed a post in concrete; fossils embedded in shale.*” *The American Heritage Dictionary of the English Language* 583. We determine that this definition of “embedded” means that the surrounding mass holds in place the object embedded, which comports with the other definitions of the term: “2. To enclose snugly or firmly. 3. To cause to be an integral part of a surrounding whole: ‘*a minor accuracy embedded in a larger untruth*’ (Ian Jack).” *Id.*

Indeed, on this record, there is no evidence in the disclosure in the Specification that the protrusions 58 pieces remaining in substrate 70 are fixed firmly by the surrounding mass of replicated substrate 70 which would

occur if the protrusions 58 pieces are “embedded” in replicated substrate 70 as specified in the dictionary definition. Indeed, to the contrary, the disclosed bonding of the remaining protrusions 58 pieces to replicated substrate 70 is only at top surfaces 62 and not along side surfaces 60, 61.

We recognize that in giving the term “embedded” the broadest reasonable interpretation in light of the usage of the term in the Specification; we have expanded the meaning of “embedded” beyond its common dictionary meaning. However, in this instance, it is clear from the disclosure in the Specification that the meaning of “embedded” is not limited to the dictionary definition. *See, e.g., In re Icon Health and Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005); *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

Accordingly, we are of the opinion that the claim language “a plurality of machined substrate pieces embedded in portions of the structured surface [of the replicated substrate]” of representative claim 16, means that protrusions 58 pieces of machined substrate 28 are attached to a surface of replicated substrate 70 and otherwise surrounded to any extent by replicated substrate 70.

## II.

Appellants contend “that Nilsen neither describes nor shows discrete pieces that are fixed firmly in a surrounding mass,” as claimed, but instead, shows “forming ‘transparent reflective metallic deposits on the surface of the microprism formations.’” Br. 6, citing Nilsen col. 2, ll. 64-65, and Fig. 2; *see also* Br. 9-12. In other words, “[i]n contrast [to a plurality of

machined substrate embedded in portions of the structured surface as claimed], the metallic deposits of Nilsen are, by Nilsen's own admission, merely *coated on the surface of* the microprisms and not enclosed in anything." Br. 11.

We agree with the Examiner's findings that Nilsen would have disclosed to one of ordinary skill in this art a compound substrate comprising microprism formations 26, which are a replicated substrate having a structured surface, and metallic deposits 30A-B, which are machined substrate pieces that are embedded in portions of microprisms 26. Ans. 3, citing Nilsen col. 2, ll. 43-44. *See also* Nilsen col. 2, ll. 35-50 and 60-67. In these respects, we find that Nilsen would have disclosed to one of ordinary skill in the art an embodiment illustrated in Nilsen Figure 2 wherein metallic deposits 30B are coated on the surface of and surrounded by microprism formations 26. Nilsen col. 2, ll. 44-50.

Thus, contrary to Appellants' position, we agree with the Examiner's finding that Appellants' claimed "machined substrate portion is embedded, 'fix firmly in a surrounding mass,' in the same sense that Nilsen's coating is fixed firmly in a surrounding mass on the surface of the microprism formations." Ans. 4; *see also* Ans. 5. In other words, Appellants' disclosed "machined portions are firmly surfaced bonded to the replicated substrate surface and surround[ed] by replicated substrate protrusions . . . [w]hich is the same structure Nilsen shows, e.g., a coating substrate selectively bonded to the microprism substrate and the coating substrate surrounded by microprism substrate protrusions." Ans. 5. This is all that claim 16 requires.



Accordingly, on this record, the Examiner has established, as a matter of fact, that Nilsen Figure 2 describes to one skilled in this art each and every limitation of the claimed invention encompassed by claim 16 arranged as required therein within the meaning of § 102(b). *See, e.g., Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 772 (Fed. Cir. 1983) (anticipation is established when the claim reads on something disclosed in the reference which meets all of the limitations of the claim).

### III.

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of anticipation found in Nilsen with Appellants' countervailing evidence of and argument for non-anticipation and conclude, by a preponderance of the evidence and weight of argument, that the claimed invention encompassed by appealed claims 16-23 and 40 would have been anticipated as a matter of fact under 35 U.S.C. § 102 (b).

The Primary Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

### AFFIRMED

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